

REMARKS

Claims 1-22 have been examined.

Claims 23-28 were withdrawn from consideration as the result of a restriction requirement.

The pending claims have been amended to address the objections raised in paragraph 2 (pages 2-5) of the Office action. The suggestions proposed by the Examiner have been adopted.

The claims also have been amended to address the rejections under 35 U.S.C. § 112, par 2. In view of those amendments, applicant respectfully requests withdrawal of those rejections.

Claims 16 and its dependent claims were rejected because claim 16 allegedly is written as a single "means" claim. Applicant respectfully disagrees and submits that claim 16 is not the type of claim addressed either by *In re Hyatt* or by MPEP § 2164.08(a). In particular, claim 16 does not include any "means" language or any "means-plus-function" language subject to 35 U.S.C. 112, par. 6. Instead, the article of claim 16 includes a computer-readable medium that stores computer-executable instructions for causing a computer system to perform the specified operation(s). Therefore, applicant respectfully requests reconsideration and withdrawal of the rejection of those claims under 35 U.S.C. § 112, par. 1.

The Office action did not reject claims 7, 8, 14, 15, 20 and 21 over the prior art.

The remaining claims were rejected over the prior art as follows:

* Claims 1, 3-5, 9, 10, 12, 16, 18 and 22 were rejected under 35 U.S.C. 103(a) as unpatentable over the combination of U.S. Patent No. 6,516,437 (Van Stralen et al.) and U.S. Patent No. 5,983,384 (Ross).

* Claims 2, 11 and 17 were rejected under 35 U.S.C. 103(a) as unpatentable over the combination of the Van Stralen et al. and Ross patents in view of U.S. Patent No. 6,253,185 (Arean et al.).

* Claims 6, 13 and 19 were rejected under 35 U.S.C. 103(a) as unpatentable over the combination of the Van Stralen et al. patent and U.S. Patent No. 6,516,444 (Maru).

As discussed below, applicant respectfully disagrees and requests reconsideration.

Claim 1, for example, recites a method that include decoding a packet “using a look-up table” that stores information “approximating output of an algorithmic decoding process.” Examples of such an algorithmic decoding process include SISO, SIHO, HISO and HIHO algorithmic processes (*see, e.g.*, claim 5).

The Office action alleges that the Van Stralen et al. patent discloses using such a look-up table. That is incorrect.

The Van Stralen et al. patent discloses a decoder for turbo codes and refers specifically to maximum a posteriori (MAP) decoding algorithms (*see, e.g.*, col. 1, line 45). FIG. 1 of that patent is a block diagram of a turbo decoder using a MAP decoding algorithm, and FIG. 2 is a block diagram illustrating data flow in the MAP component decoder. As explained in that patent, the MAP decoder provides estimates of the a posteriori probabilities of various states and transitions (col. 1, lines 26-27). The output of the MAP component decoder is an a posteriori probability estimate of the systematic symbols (col. 3, lines 64-66).

Although the Van Stralen et al. patent refers to several look-up tables, the decoding process does not appear to use a look-up table that stores information approximating the *output* of the *algorithmic decoding process*. For example, it does not include a look-up table that stores the output of the MAP decoding process (*i.e.*, an a posteriori probability estimate of the systematic symbols). Instead, the look-up tables provide the channel transition probabilities (*i.e.*, the systematic symbol and parity symbol contributions) required in the calculations by the gamma block (col. 1, lines 56-62). The gamma block is simply an internal part of the MAP decoder (*see* reference numeral 40 labeled “gamma” in FIG. 2, which is a block diagram of the data flow in the MAP component decoder).

Therefore, although the Van Stralen et al. patent discloses the use of look-up tables, it does not appear to disclose decoding a packet “using a look-up table that stores information approximating output of an algorithmic decoding process” as recited in claim 1 or the similar features recited in the other independent claims.

Neither the Ross patent nor the Maru patent discloses or suggests those features missing from the Van Stralen et al. patent.

Claims 2, 11 and 17 recite the additional feature regarding "joint quantization" of the data before decoding. The Office action relies on the Arean et al. patent as allegedly disclosing that feature. Applicant respectfully disagrees.

As noted at page 7, lines 7-17 of the pending specification, there are different types of quantization. The pending claims recite "joint quantization." Contrary to the Office action, it does not appear that "joint" quantization is disclosed in the Arean et al. patent.

However, even if the Arean et al. patent does disclose joint quantization, there would have been no "clear and particular" motivation for one of ordinary skill to combine the disclosure of the Arean et al. patent with that of the Van Stralen et al. patent. As articulated by the Court of Appeals for the Federal Circuit:

Our case law makes clear that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." Id.

"When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998) (citing In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)).

Ecolochem, Inc. v. Southern California Edison Co., 56 USPQ2d 1065, 1072-73 (Fed. Cir. 2000). The showing of the motivation to combine must be "clear and particular." *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998); *Teleflex, Inc. v. Ficosa North Am. Corp.*, 63 USPQ2d 1374 at 1387 (Fed. Cir. 2002).

As noted above, the Van Stralen et al. patent relates to turbo coding and states that:

Turbo decoding involves an iterative algorithm in which probability estimates of the information bits that are derived for one of the codes are fed back to a probability estimator for the other code. Each iteration of processing generally increases the reliability of the probability estimates. This process continues, . . . until the probability estimates can be used to make reliable decisions.

(Van Stralen et al. patent, col. 1, lines 17-24) In contrast, the Arean et al. patent relates to multiple description transform coding (MDTC). As explained by the Arean et al. patent, MDTC may introduce a correlation between transmitted coefficients so that lost coefficients can be statistically estimated from received coefficients (col. 1, lines 23-26). As further noted by the Arean et al. patent:

This correlation is used at the decoder at the coefficient level, as opposed to the bit level, so it is fundamentally different than techniques that use information about the transmitted data to product likelihood information for the channel decoder.

(Arean et al. patent, col. 1, lines 26-30) (Emphasis added) In other words, the type of coding technique that the Arean et al. patent relates to is “fundamentally different” from the turbo coding technique disclosed by the Van Stralen et al. patent. Therefore, one of ordinary skill in the art would not have been motivated to combine the disclosure of the Arean et al. patent with that of the Van Stralen et al. patent so as to obtain the subject matter of claims 2, 11 and 17.

For those additional reasons, claims 2, 11 and 17 should be allowed.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this

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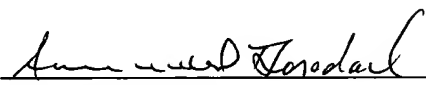
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paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 7/20/04



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